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In a multi-band radio terminal apparatus, even when communication frequency bands are switched, a reception intermediate frequency is selected to be equal to each other in the respective different communication frequency bands. As a result, the circuit arrangements of this multi-band radio terminal apparatus succeeding to the intermediate frequency signal circuit stage are commonly used in the respective communication frequency bands, and can be made simple. To this end, while a local oscillator signal is produced by a voltage-controlled oscillator, a phase-locked loop, and a doubler, in such a case that a communication is established within a plurality of communication frequency bands, the transmission/reception frequency intervals of which are different from each other, a mixer for a reception system and a mixer for a transmission system are commonly used so as to convert the frequency of the local oscillator signal into such a frequency existing between the communication frequency and the intermediate frequency.